

WAFWA Climate Change Workgroup Multi-Sector Climate Change Adaptation Planning September 7, 2010

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## **Preface**

Climate change will impact natural resources on a global scale but response efforts will be more effective at a smaller scale. How state fish and wildlife agencies (states) choose to address sea level rise, precipitation changes, and other impacts will vary based on the degree of the impact and the resources the organization possesses to address the issue. With or without federal funding states need to determine how they will address climate change in order to reduce the vulnerability of species and habitats and strengthen their organization's ability to respond to climate change related challenges. By creating a climate change natural resource adaptation plan that details a response across sectors (transportation, energy development, public health, as examples) states will be on a proactive path to address vulnerabilities and attract resources to implement a comprehensive response. Many states have recognized this need and created or are in the process of creating such a plan.

Even though there is a great deal of uncertainty about the outcome of various federal climate change bills there appears to be general momentum towards requiring states to develop state-wide climate change adaptation strategies in order to be eligible to receive federal funds. The federal bills under consideration over the past year generally call for natural resource adaptation strategies that detail current and future efforts a state is pursuing to address ongoing and expected impacts of climate change on natural resources and coastal areas. To cover these topics a state agency will likely be asked to work across sectors and agencies to address issues falling under multiple jurisdictions. The federal bills also specify that the identified strategies will need to be incorporated into a revision of a state's wildlife action plan (SWAP). This raises the issue of what a state-wide natural resource adaptation strategy that addresses the impacts of climate change should look like and how it will be integrated with SWAP updates and other appropriate state planning documents.

In addition to the possibility of resources from federal legislation there is also the potential for other funding from research and implementation dollars that might come from a variety of sources. If a state has been proactive in preparing a plan for addressing the challenges associated with climate change in a way that incorporates other sectors will better position itself to be competitive for those resources. If states have not engaged in planning efforts they risk losing out on opportunities for additional funding.

Much focus to date has been on the development of guidance for incorporating climate change as part of state SWAP updates. The Association of Fish and Wildlife Agencies' (AFWA) Climate Change committee and Teaming with Wildlife committee released voluntary guidance<sup>1</sup> to help states update their SWAP for climate change. However, less emphasis has been placed on making the case for creating a state-wide, multi-sector adaptation plan that is separate from the revision of the SWAP. In addition, more discussion is needed to determine how to better link a state-wide adaptation plan with state wildlife action plan updates and other appropriate state planning documents.

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<sup>&</sup>lt;sup>1</sup> Voluntary Guidance for States to Incorporate Climate Change into State Wildlife Action Plans & Other Management Plans, November, 2009

A proposal was put forward to the Western Association of Fish and Wildlife Agency (WAFWA) Directors in January 2010 to establish a working group of the WAFWA climate change committee to address these issues. The Directors' identified a small group of state fish and wildlife agency contacts to develop a set of recommendations on why state agencies need to consider multi-sector planning. It was the intent of the WAFWA Directors that this document complements the guidance document put out by AFWA. Special thanks to Ken Brunson (KS), Eric Gardner (AZ), Wendy Gordon, Ph.D. (TX), Lynn Helbrecht (WA), Doug Vincent-Lang (AK), Amber Pairis, Ph.D. (CA), and Arpita Choudhury, Ph.D. (AFWA) for their efforts as part of the working group.

## **Benefits of Multi-Sector Planning for Climate Change**

- A multi sector planning approach will better position a state to be competitive for new or additional resources.
- Use climate change as a catalyst to take a proactive landscape level approach to conservation planning in a way that
  - o Promotes the importance of existing initiatives
  - o Attracts the resources necessary to implement conservation efforts.
- Use climate change planning as a segueway to enable input and build support into important planning processes.
- Use climate change as a common challenge facing many different partners to integrate state issues into regional efforts.

## Why Should States Engage in Multi-Sector Planning?

Successful management of fish and wildlife and their uses in the face of a changing climate will require a multi-disciplinary approach on a landscape basis. This will necessitate a multi-sector effort that crosses jurisdictions. Accordingly, this will require strengthening existing relationships and building new relationships across agencies sharing common goals or interests. For example, there is an increased likelihood that climate will modify hydrologic conditions thereby affecting fish and wildlife as well as the uses they support. These kinds of changes could result in a multi sector struggle for limited resources as evidenced in the recent court proceedings in California over protection of the Delta Smelt and the need to provide drinking water for the state. In light of the impacts associated with climate change it is quite likely that in the near future the expertise to assess future hydrologic conditions and regulate water use (e.g., instream flow reservations) will not reside solely within a fish and wildlife management agency. Assessment of future impacts through development of adaptive management strategies will require reaching out to other agencies with needed expertise and regulatory authorities. Other examples along these lines include air and water quality, fire management, coastal zone management, and forest management (see Appendix I).

A Collaborative Approach is Essential. Climate change is affecting, and will continue to affect, nearly every aspect of our society and environment – forestry, agriculture, ecosystems, built environment and infrastructure, transportation, human health, communities and security. These impacts are interrelated, and a successful response and adaptation strategy requires an integrated and multi-sector approach. The development of adaptation strategies to address impacts to fish and wildlife will be more effective and more likely to be implemented when linked to those addressing impacts to communities and infrastructure. For example, addressing impacts to coastal habitats from sea level rise might include a strategy to reduce or eliminate seawalls or dikes – a strategy that needs to be developed in concert with a multiple state agencies and partners involved since concerns will range from protecting development vulnerable to sea level rise to actions that will allow wetlands to migrate inland. (For more examples of the links between natural resource conservation and other sectors see Appendix I.) A multi-sector strategy can also help to build understanding about the relationship between the projected physical impacts of climate change (for example, increased drought, heat waves, flooding, wildfire and sea level rise) and the ecological processes and functions that sustain life (water and air filtration, flood control, food and fiber production, nutrient cycling, pollination).

For these reasons, as states develop natural resource adaptation strategies, it will be imperative that a multi-sector collaborative approach be used. Because differing agencies and jurisdictions will need to be involved, there is a clear benefit to having a legislative mandate or executive order to guide the planning effort. Such a policy directive would help ensure that all key authorities are at the table to develop strategies. By taking a lead role or initiating this kind of multi-sector planning effort, WAFWA Directors' will ensure

that fish and wildlife is a key consideration in how strategies are developed and implemented.

The Role of SWAPs. For many states, SWAPs may serve as a jumping off point for multi-sector planning since considerable groundwork has already occurred towards identifying key elements of climate change planning. In many instances, revisions of SWAPs will incorporate climate change vulnerability assessments that will position state wildlife agencies to help lead multi-sector efforts within their state. Principles guiding plan revisions require each state wildlife agency to collaborate with other land and water management agencies along with other stakeholder groups and organizations, thus bringing together key partners that can also help craft a multi-sector adaptation strategy. It is important to note that these kinds of planning and coordination efforts are not limited to non-game species that are covered in the SWAPs. In fact, as species and vegetation communities respond to climate change impacts it is possible that habitat needs and home range for specific species may change and as an example may overlap or encroach on the habitat of a popular game species requiring all divisions within a state agency to respond and become involved in the larger planning effort.

### How Might State-wide Planning Efforts Fit Into Federal Initiatives?

Under various pieces of proposed federal legislation, to be eligible for funding that may be available through climate and energy initiatives, states will be required to formulate multi-sector adaptation strategies. In addition, states that have been proactively developing such plans now find themselves in a strong position to advise federal agencies and programs that are addressing climate change such as the National Fish and Wildlife Climate Adaptation Strategy or Landscape Conservation Cooperatives.

Several key websites are listed in Appendix II that may serve as initial references for those just getting started in state multi-sector climate change planning and discussions of how this kind of planning effort might fit with SWAPs and other management plans...

## Which States Are Pursuing Multi-sector Adaptation Plans?

Based on a survey undertaken by AFWA, of the twenty-four states (AK, AZ, CA, CT, CO, DE, FL, IN, MA, MD, ME, MI, MT, MO, NE, NH, NJ, NY, PA, TX, VA, VT, WA, and WI) that filled out the survey thirteen (AK, CA, CT, FL, MA, MD, ME, NH, NY, PA, VA, WA, and WI) have a state adaptation plan or are in the process of completing their state adaptation plan. Of those thirteen, six states (CT, FL, MA, ME, PA and WA) have a legislative mandate to create a multi-sector state adaptation plan.

In Connecticut, state agencies have been directed to complete an assessment of climate change impacts and develop a set of actionable recommendations by the end of 2010 through a comprehensive effort that addresses agriculture, infrastructure, public health, and natural resources. In 2009, the Maine Legislature directed the Department of Environmental Protection to evaluate what options the state has to adapt to the impacts of climate change. The Department was charged with bringing together a broad cross section of people representing business, trade, agriculture, forestry, health, transportation, and conservation, as well as state and municipal government. In February 2010, the

Department presented the Legislature with a report that details their findings and is now working with agencies to implement the recommendations and develop a more comprehensive state adaptation plan for delivery to the legislature in 2012.

Seven states (AK, CA, MD, NH, NY, VA and WI) are developing adaptation plans under the guise of an Executive Order issued by their Governor. California's Adaptation Plan is in direct response to Gov. Schwarzenegger's November 2008 Executive Order that directed the Natural Resources Agency to identify how state agencies could respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Maryland's Governor signed an Executive Order in April 2007 creating the Maryland Commission on Climate Change and a call for the development of a comprehensive adaptation plan. Sectors involved include: coastal, water resources, agriculture, forest and terrestrial ecosystems, bay and aquatic ecosystems, growth and land-use, and human health.

As a whole, state fish and wildlife agencies are not the lead agency of these planning efforts, but they are responsible for the wildlife and habitat portions of the plan. The Department of Environmental Protection or a Climate Change Commission (Council or Committee) are commonly charged with leading a sector-wide, state adaptation plan. In the case of where a Climate Change Commission is established, it is generally borne from an Executive Order and is populated by individuals from a variety of departments or agencies within state government in addition to individuals from the private sector.

Two exceptions to the models described above are the Wisconsin Department of Natural Resources (DNR) and Alaska Department of Fish and Game (DFG), who both co-lead their state's adaptation planning efforts. In Wisconsin the DNR is working with the Wisconsin Initiative on Climate Change Impacts (WICCI). The WICCI is a group formed in 2007 out of a partnership between the DNR and the University of Wisconsin-Madison's Nelson Institute for Environmental Studies with the goal of assessing and anticipating climate change impacts on Wisconsin's natural resources, ecosystems, regions and industries, and recommending adaptation strategies that can be implemented. In Alaska the DFG is the lead for fish and wildlife and their uses and share the lead with the Department of Natural Resources on land and water management issues and with the Department of Environmental Conservation on water and air quality issues. The DFG also cooperates with other department and agencies on issues related to energy and economic development. For survey details see Appendix III.

### Multi-Sector Adaptation Planning: California Case Study

### 2009 California Climate Adaptation Strategy

The California Natural Resources Agency in conjunction with multiple state agencies released the <u>California Climate Adaptation Strategy</u> (CAS) in December of 2009. The CAS summarizes the best known science on climate change impacts in seven specific sectors and provides recommendations on how to address those threats.

The creation of the CAS was a direct response to Governor Schwarzenegger's November 2008 Executive Order S-13-08, that specifically tasked the Natural Resources Agency to oversee the development of a state-wide adaptation plan and identification of actions to help state agencies respond to impacts associated with a changing climate such as rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. The report focuses on seven sectors including: public health; biodiversity and habitat; ocean and coastal resources; water management; agriculture; forestry; and transportation and energy infrastructure. The CAS emphasizes that climate adaptation and mitigation must complement each other and efforts within and across sectors must be coordinated. The preliminary recommendations outlined in the CAS focus on the need for strong coordination and guidance, funding opportunities, and public outreach.

The Biodiversity and Habitat Sector chapter of the CAS was co-led by the California Department of Fish and Game (Department) and California State Parks. Strategies developed for this document were a product of several efforts including workshops held by the Department to integrate climate change into California's Wildlife Action Plan, input from public meetings, and comments submitted by partners. The specific actions identified in this document to address the challenges associated with a changing climate are part of a comprehensive approach for landscape-level conservation planning across the state. Most importantly, the strategy identifies measures needed for successful implementation including funding, capacity building, partnerships, and education and outreach.

This plan now serves as a valuable resource that summarizes expected impacts to the state's natural resources and provides tools to Department staff to start proactively engaging in long-term planning. The document reiterates the importance of natural resource conservation to other planning efforts such as those in the transportation and public health sectors. Overall, this year-long involvement in multi-sector adaptation planning was complicated at times but is now providing the Department with a valuable tool to ensure that natural resource conservation has a voice at the table in adaptation planning efforts across the state.

### Multi-Sector Adaptation Planning: Alaska Case Study

### **Alaska Climate Adaptation Plan**

The State of Alaska is developing a statewide climate change strategy for both mitigation and adaptation. This is a multi-sector statewide effort involving many state departments and agencies. The Alaska Department of Fish and Game has the lead for fish and wildlife and their uses. The Department shares the lead with the state's Department of Natural Resources on land and water management issues and with the state's Department of Environmental Conservation on water and air quality issues. The Department is also cooperating with other department and agencies on issues related to energy and economic development.

Each department/agency has been asked how climate change will affect its ability to continue to meet stated missions and goals. The effort is guided by an executive order from the governor. A sub-cabinet specific to this planning effort has been formed to lead the effort. The sub-cabinet set up a public process to provide feedback on the

development of mitigation and adaptation strategies. The public process was completed in 2009 and the sub-cabinet accepted and approved the reports. These reports are being used by the sub-cabinet to develop a statewide multi-sector climate strategy. All departments and agencies continue to be involved along with various federal agencies, the public and local universities. It is expected that this report will be completed by fall, 2010. Details can be found at <a href="https://www.climatechange.alaska.gov">www.climatechange.alaska.gov</a>. Also, the Department of Fish and Game is finalizing a step-down climate change strategic plan focusing on fish and wildlife and their sustained uses. It is expected that this plan will be released in fall, 2010.

## Closing: How Multi-Sector Adaptation Planning will help your Agency

Wildlife management planning under normal circumstances is a difficult task due to the multitude of species, habitats, and threats to consider. To be most effective, planning must take into consideration the future condition of the landscape and it becomes much more complex when it incorporates the full host of impacts that future conditions such as land development, energy development, and highway and power corridor construction pose.

### **Climate Change as a Catalyst**

Climate change is a game changer. It is a landscape-level threat that transcends natural resource impacts, and, as such, is proving to be a catalyst for effective, multi-sector planning. These state-wide adaptation planning efforts stem from the recognition of the interdependence of sectors, agencies and departments as they relate to both climate change impacts and responses.

#### **Enabling Input into Important Planning Processes**

By engaging in, or perhaps leading a multi-sector effort to develop long-term adaptation plans, a state agency will ensure that they have input into important planning documents that will benefit species and habitats besides just their own fish and wildlife plans. This will be crucial to the state's ability to facilitate wildlife adaptation. Such planning can bring entities together that have not always worked closely with each other to plan for the future. Often these entities have overlapping jurisdictions, such as a state land office that has responsibility for coastal zone management and the state fish and wildlife agency whose purview includes estuarine resources. Many of these potential partners have a vested interest in the future of wildlife, too.

### **Integrate State Issues into Regional Efforts**

Multi-sector adaptation planning will allow for the integration of regional efforts such as the Western Governor's Association's ongoing efforts including those focused on planning for connectivity and corridors, energy development, and adaptation planning while also lending itself to better coordination across states with common resources, such as the Chihuanhuan desert of Texas, New Mexico, Arizona, and Mexico. Landscape-scale conservation strategies will only become more important as climate continues to change.

### **Take Home Message**

With or without federal funding state agencies need to determine how they will address climate change in order to reduce vulnerability to climatic changes and strengthen their ability to adapt. By creating a multi-sector climate change natural resource adaptation plan that details a comprehensive response will put the state on a proactive path to address vulnerabilities and attract resources to implement their response. Successful management of fish and wildlife and their uses in the face of a changing climate will require a multi-disciplinary approach on a landscape basis. This will necessitate a multi-sector effort that crosses jurisdictions in order for responses designed to conserve fish and wildlife to be successful and attract the resources necessary for implementation.

## **Benefits of Multi-Sector Planning for Climate Change**

- A multi sector planning approach will better position a state to be competitive for new or additional resources.
- Use climate change as a catalyst to take a proactive landscape level approach to conservation planning in a way that
  - o Promotes the importance of existing initiatives
  - o Attracts the resources necessary to implement conservation efforts.
- Use climate change planning as a segueway to enable input and build support into important planning processes.
- Use climate change as a common challenge among partners to integrate state issues into regional efforts.

### **Appendix I: Overlap with Other Sectors**

### **New Opportunities Presented by Climate Change**

While many impacts of changing climate will potentially negatively affect fish and wildlife and their uses, others may result in new opportunities. For example, in Alaska new commercial fishing opportunities may open in the Arctic as sea ice retreats. Failure to identify and assess such opportunities will result in lost economic opportunity. Because such opportunities are new, there is very little information available to develop them in a responsible manner. Responsible development will require assessment, planning and monitoring.

### **Impacts on Existing Regulatory Structures**

Many environmental laws, regulations and policies on the federal, state, and local levels were developed before signs of climate change were observed. The challenge for environmental and resource management agencies will be to manage for healthy, productive ecosystems in an uncertain future. This will necessitate possible changes to institutional, legal and policy frameworks to allow quick responses to unanticipated consequences. For example, resource managers in the west may need to revise policies relative to wildland fire management in light of increasing vulnerability to fire. There is a need to conduct a review of key regulations and policies, and their enabling statutes and laws, applicable to the management of fish and wildlife resources and report on changes that may be needed to them to manage these resources and meet agency missions in the context of climate change.

#### **Agriculture**

As temperature and precipitation patterns change it is likely that there will be a shift in the intensity and location of agriculture that could impact fish and wildlife resources. Agricultural lands can provide significant habitat and connectivity between protected conservation areas, but can also compete with fish and wildlife for resources that may become limited due to climate change. Further impact to fish and wildlife may result from chemical treatment of pests and pathogens that may proliferate within agricultural settings with warming temperatures. Many invasive species impact both agriculture and native habitats and it is essential that both sectors work together to be effective.

#### **Carbon Sequestration**

Carbon sequestration activities are currently largely commodity driven and could have impacts to fish and wildlife populations and the habitats they depend on if not managed wisely. It will also be critical to avoid converting or degrading existing habitat for biofuel production and to avoid use of highly invasive and/or exotic species that could escape and/or spread.

#### **Energy Development**

Environmental concerns associated with energy development and production include direct and indirect environmental impacts such as habitat fragmentation, habitat loss and mitigation, as well as legal issues; the foremost being the incidental take of sensitive, rare, and state and federally listed species. Managers need to be able to provide energy

developers with a better understanding of the impacts of biofuels, wind, ocean/wave, geothermal, and solar development on natural resources, including developing eco-friendly standards to guide alternative energy development and requiring pre- and post-project site monitoring to document and address potential ecological impacts in order to strike a balance between energy security/independence and conservation.

### Impacts of Development of "Clean" or "Green" Energy Alternatives

National and states initiatives are focusing on the development of mitigation strategies that rely on "clean" energy sources to reduce carbon footprints. While these "clean" energy sources lessen carbon emissions, they have other effects some of which may adversely impact fish and wildlife and their uses. For example, wind energy development has been shown to have negatively impact birds through strikes associated with wind turbines or habitat destruction associated with infrastructure; fish impacts are associated with hydroelectric development. It will be critical to assure that "clean" energy development is done in a manner that minimizes or avoids impacts to fish and wildlife and their uses.

#### Fire

Fire suppression or altering wildfire regimes and patterns can destabilize ecosystems resulting in losses to biodiversity. Resource managers must better coordinate across sectors to protect the public by making structures in the wildland-urban interface fire-safe while maintaining the important ecological role fire plays on the landscape. Annual burning of grasslands, especially in combination with intensive grazing practices, can have dramatic and negative impacts to wildlife, particularly ground nesting birds. Exotic grass species can contribute to serious wildfire fuel loads, causing serious ecological damage. These conditions may be exacerbated by climate change and should be addressed by any planning and management efforts related to fire management.

### **Forestry and Range Lands**

Management of forests and rangelands should protect native biodiversity, promote the ecosystems services of these lands including carbon sequestration, and enhance ecosystem function of these lands to withstand and adapt to changing conditions. Agencies and landowners should consider activities with adaptation co-benefits that could leverage funding, e.g. riparian forest planting or management for flood bypasses, upper watershed forest management for water supply and quality, oak woodland restoration. Where activities have a mitigation co-benefit, funds may be more readily obtained.

#### **Invasive Species**

Invasive species may become established in new areas as a result of more favorable environmental conditions resulting from a changing climate. This has the potential to negatively affecting native and endemic species.

#### Oceans and Coastal-Sea level rise

Sea level rise and changes in the intensity of storm events could impact low-lying coastal areas and result in the loss or inundation of coastal wetlands and dune habitat resulting in

salt water intrusion and loss of fresh water resources for fish and wildlife. Inundation of coastal infrastructure will cause widespread pollution and contamination further jeopardizing marine and near-marine environments.

#### **Ocean Acidification**

A changing climate may result in increased acidification of the nation's coastal waters. However, it is unknown at what rate such acidification will occur and at what levels impacts to species will occur. If tipping points are reached, marine food webs could be altered, potentially affecting commercially-targeted fish and other marine-dependent species.

#### **Public Health**

The effects of climate change will impact natural ecosystems and species directly, with consequences that may have substantial public health implications. Changing climates could shift the abundance and geographic distribution of disease vectors and parasites and affect the seasonal occurrence of many infectious diseases causing them to spread or increase their virulence. Control, eradication, and abatement actions intended to protect public health could result in contamination of water and terrestrial environments and affect the survival and behavior of many organisms.

### **Transportation**

Climate change is expected to have an impact on transportation infrastructure. Issues such as rising sea level and changes in regional temperature may change the nation's road and rail network that could eventually require strategic adaptation planning to respond to the impacts. As planning for expected impacts caused by climate change are considered in the transportation sector it will be important to pursue opportunities for communication and collaboration to insure that the adaptation strategies for protecting natural resources are also considered in transportation plans.

#### Water

Changes in the hydrologic cycle, including alterations to timing, frequency, and magnitude of precipitation events, as well as changes to hydrologic regimes will affect riparian and aquatic communities and could exacerbate conflicts over allocation of surface and ground water. Increased conflicts between people and wildlife will require greater and more effective communication and collaboration among managers and a wide array of stakeholders.

## **Appendix II: Key Websites for Multi-Sector Planning**

### Federal Climate Change Plans and Assessment Tools

USGS--http://nccw.usgs.gov/

U.S. Forest Service--http://www.nrs.fs.fed.us/atlas/bird/index.html

Environmental Protection Agency--http://www.epa.gov/statelocalclimate/

National Oceanic and Atmospheric Administration--http://www.noaa.gov/climate.html

National Fish Habitat Action Plan <a href="http://fishhabitat.org/">http://fishhabitat.org/</a>

### **State Planning Efforts**

California Natural Resources Agency Adaptation Planning

http://www.climatechange.ca.gov/adaptation/

California Department of Fish and Game: <a href="http://www.dfg.ca.gov/climatechange/">http://www.dfg.ca.gov/climatechange/</a>

WI Initiative on Climate Change Impacts- http://www.wicci.wisc.edu/

Alaska Climate Change Strategy: http://climatechange.alaska.gov/ Florida Climate Action

Team: http://www.flclimatechange.us/

Climate Change in Washington: http://www.ecy.wa.gov/climatechange/index.htm

WAFWA Climate Change Committee: http://www.dfg.ca.gov/climatechange/wafwa/

### **Climate Change Planning Sites**

AFWA: http://www.fishwildlife.org/wildlife\_action\_plans.html

NatureServe-- http://www.natureserve.org/prodServices/climatechange/ClimateChange.jsp

The Nature Conservancy--http://www.nature.org/initiatives/climatechange/

Center for Climate Strategies- http://www.climatestrategies.us/

Georgetown Climate Center: State & Local Adaptation Plans:

http://www.georgetownclimate.org/adaptation/adaptation-plans.php

The Pew Center on Global Climate Change

State Adaptation Plans:

http://www.pewclimate.org/what\_s\_being\_done/in\_the\_states/adaptation\_map.cfm

Climate Action Plans:

http://www.pewclimate.org/what\_s\_being\_done/in\_the\_states/action\_plan\_map.cfm

Climate Legislation:

http://www.pewclimate.org/what\_s\_being\_done/in\_the\_states/state\_legislation.cfm

http://www.pewclimate.org/what\_s\_being\_done/in\_the\_states/climatecomissions.cfm

## **Appendix III: Sampling of Survey Response**

## Alaska

Yes/ No/ Comments/ Related Links	
Is your state planning a multi-sector state-wide adaptation plan?	<b>Yes.</b> The State of Alaska is developing a statewide climate change strategy for both mitigation and adaptation. This is a multi-sector statewide effort involving many departments and agencies. Each department/agency has been asked how climate change will affect their ability to meet their mission.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	<b>No.</b> The effort is guided by an executive order from the governor. A sub-cabinet has been formed to lead the effort. It is not legislatively mandated.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No, the lead is shared. We have the lead for fish and wildlife and their uses. We share the lead with our Department of Natural Resources on land and water management issues and with our Department of Environmental Conservation on water and air quality issues. We also cooperate with other department and agencies on issues related to energy and economic development.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	<b>About 2/3 of the way.</b> We have completed the public process and the sub cabinet has accepted the reports from their advisory bodies. These reports are being used by the sub-cabinet to develop a statewide multi-sector climate strategy. It is expected that this report will be completed by fall, 2010.
What sectors are involved?	All State departments and agencies, various federal agencies, the public, and the university.
Where does your state/agency get its scientific information for climate change planning efforts?	From all sources. We collect our own information where needed. Walso rely on the University of Alaska for modeling. We also obtain information from various federal agencies. Finally, we obtain information from various public and private/nonprofit organizations.

## Arizona

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	One exists, but it does not include wildlife or wildlife related issues (i not our plan). We do not have a completed wildlife plan. No other plan is in the works.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	For wildlife issues only.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	N//A
What sectors are involved?	

Where does your state/agency get its scientific	Primary literature, academic and NGO research groups, expert
information for climate change planning efforts?	opinion, various published guidelines.

## California

Yes/ No/ Comments/ Related Links	
Is your state planning a multi-sector state-wide adaptation plan?	CA has completed a multisector state wide adaptation plan. This is intended to be a first cut with subsequent updates in the coming yea <a href="http://www.climatechange.ca.gov/adaptation/">http://www.climatechange.ca.gov/adaptation/</a>
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	The strategy is in direct response to Gov. Schwarzenegger's November 2008 Executive Order S-13-08 that specifically asked the Natural Resources Agency to identify how state agencies can respon to rising temperatures, changing precipitation patterns, sea level rise and extreme natural events.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	The California Natural Resources Agency is lead but the CA Dept of Fish and Game and CA State parks co-lead the development of the biodiversity and habitat chapter of the document.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	completed
What sectors are involved?	Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure.
Where does your state/agency get its scientific information for climate change planning efforts?	CA Climate Research Center which is part of the CA Energy Commission Public Interest Energy Research program. Funds are awarded to leading entities both public and private to conduct resear for climate change mitigation and adaptation. <a href="http://www.climatechange.ca.gov/research/index.html">http://www.climatechange.ca.gov/research/index.html</a>

## Colorado

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Recently, a group has been convened at the state level to lay the foundation for future efforts toward development of a multi-sector state-wide adaptation plan. The group will be working this year to produce a report by December 2010 outlining who's doing what regarding climate adaptation within the state and recommendations the next (2011) administration to consider. The group is comprised representatives of the Governor's Energy Office, Governor's Climate Change Advisor, Colorado Department of Agriculture, Colorado Department of Health, Colorado Water Conservation Board, Colorado Division of Wildlife, and Western Water Assessment.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	No, not that I'm aware of.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	The Division of Wildlife is seeking clarification at the state level of whour role should be in future adaptation planning, given the various Federal adaptation initiatives currently underway within the

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	Department of Interior. The Colorado Water Conservation Board, a sister agency of CDOW within the Colorado Department of Natural Resources, has been leading adaptation planning efforts toward was adaptation.  Our agency is cooperating with the Colorado Water Conservation Board to provide fish/wildlife information as it relates to water
	adaptation and future drought mitigation and response planning.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See question 1 above.
What sectors are involved?	Agriculture, Energy, Tourism & Recreation, Water Quality & Quantity Wildlife/Forestry/Ecosystems
Where does your state/agency get its scientific information for climate change planning efforts?	USGS, USFWS, AFWA, NCCWSC's & LCC's, USDA Rocky Mount Research Station, Colorado State University, University of Colorado NOAA, Colorado Climate Center – State Climatologist, Western Wa Assessment, & Colorado Water Conservation Board efforts including "Upper Colorado River Water Availability Study", "Front Range Water Availability Study", and "Climate Change in Colorado – A Synthesis Support Water Resources Management and Adaptation".

## Connecticut

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes. State government is required as per Public Act 08-98 to complete an assessment of climate change impact and a set of actionable recommendations during 2010. The Bureau of Natural Resources (our "fish & wildlife agency") has lead responsibility along with TNC for the Natural Resources component of this effort. Many Bureau of Natural Resources staff are involved.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	See above.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	Governor's Steering Committee on Climate Change and Adaptation Subcommittee.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	Each plan is being developed by a separate workgroup with two co- chairs.
What sectors are involved?	PA 08-98 also requires impact assessments and adaptation plans for agriculture, infrastructure, and public health. Hence the CT Department of Agriculture, CT Department of Public Health, and representatives from municipal governments (on the infrastructure workgroup) are involved. Plans are all being developed using exper panels and a variety of facilitated meeting formats. Each plan is being developed by a separate workgroup with two co-chairs.
Where does your state/agency get its scientific information for climate change planning efforts?	We've taken information from a wide variety of sources including the scientific literature (grey & peer-reviewed) and government reports. Because of our proximity to NY City, we've drawn heavily on information/reports produced by the New York City Panel on Climate Change. More recently, for our adaptation plan development, we've been using information from the "Voluntary Guidance for States to Incorporate Climate Change into State Wildlife Action Plans & Other Management Plans" produced by AFWA.

## Delaware

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Apparently, but we cannot yet confirm which agency is taking the lead. We do not believe anything has started yet.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	Unknown, but doubtful legislative mandate exists.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No. Unsure who is the lead
If your state is doing sector-wide adaptation planning, how far along in the process are they?	n/a
What sectors are involved?	n/a
Where does your state/agency get its scientific information for climate change planning efforts?	DE is largely focused on sea level rise. Abiotic technical information mostly from Delaware Coastal Program.

## Indiana

Yes/ No/ Comments/ Related Links	
Is your state planning a multi-sector state-wide adaptation plan?	No, At this time, Indiana intends to amend the Indiana Wildlife Actior Plan to address climate change.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	no
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	n/a
If your state is doing sector-wide adaptation planning, how far along in the process are they?	no
What sectors are involved?	n/a
Where does your state/agency get its scientific information for climate change planning efforts?	No response

## Maine

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	In 2009, the Maine Legislature directed the Department of Environmental Protection to evaluate what options the State and its citizens have as we adapt to the impacts of climate change. Legislators recognized that climate change is already occurring, and while Maine has made significant progress in reducing greenhouse gas emissions and should continue those efforts, we face unavoidate changes in our climate in any case. The Department was charged we

	bringing together a broad cross section of Maine people representing such diverse interests as business, trade, agriculture, forestry, health transportation, and conservation, as well as state and municipal government. More than 70 groups, including representatives of more than 15 state agencies or sub-agencies, participated in coordinating and working committees. In February 2010, the Department presented the Legislature with a report that details the findings, strategies and recommendations of these many interests: <i>People an Nature Adapting to a Changing Climate: Charting Maine's Course.</i> TReport includes numerous strategies and over 60 recommendations several of which are specific to the wildlife / habitat issues noted above. It illustrates the key themes that recurred across the many topics and sectors considered, whether coastal ecosystems, public health, invasive species, transportation systems or agriculture. DEP now taking the lead, in cooperation with the other state agencies, to (a) implement the recommendations in the Report; and (b) develop a more comprehensive state adaptation plan for delivery to the legislature in 2012, as mandated by Resolution in 2009.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No – the lead is Maine Dept of Environmental Protection.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	See above
Where does your state/agency get its scientific information for climate change planning efforts?	From the scientific literature, from state agency partners and public interest groups, from an ongoing partnership with the Climate Chang Institute at the University of Maine, and from solicitation of outside expert opinion.

## Maryland

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes, the Phase I Adaptation Strategy for Sea Level Rise and Coas Storms was released in August 2008. The Phase I Strategy is a key component of the Maryland Climate Action Plan, detailing the action necessary to protect Maryland's future economic well-being, environmental heritage and public safety in the face of climate chan and sea level rise. Implementation of the Strategy is currently underway.
	The Phase II Strategy: Beyond the Coast is currently under development. DNR is working with the University of Maryland, Cen for Environmental Science and the Integrated Application Network t facilitate six sector-based adaptation work groups: Agriculture, Water Resources, Bay & Aquatic Ecosystems, Forest & Terrestrial Ecosystems, Human Health, and Growth & Land-Use. Each workgroup is scheduled to complete sector-based adaptation strategies by December 2010.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	Maryland's Governor signed an Executive Order in April 2007, creating the Maryland Commission on Climate Change. The EO calls for the development of a comprehensive adaptation plan. Sectors involve include: coastal, water resources, agriculture, forest and terrestrial ecosystems, bay and aquatic ecosystems, growth and land-use, and

	human health.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	The Dept. of Natural Resources is co-leading the effort along with th University of Maryland, Center for Environmental Science.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	See above
Where does your state/agency get its scientific information for climate change planning efforts?	Varied sources, but primarily from the IPCC, USGRPC, EPA, and NOAA. We also rely on the University of Maryland, Center for Environmental Science to synthesize global and regional data of our region.

## Massachusetts

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	The Climate Change Adaptation Advisory Committee will be releasi a report in the near future.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	Yes. It seems to include a wide variety of sectors which include naturesources.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	The Climate Change Adaptation Advisory Committee is housed with the Executive Office of Energy and Environmental Affairs (EEOA). The Division of Fisheries and Wildlife is an agency of the Departmer of Fish and Game which is within EEOA.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	The Climate Change Adaptation Advisory Committee Report is scheduled to be released shortly. That report will likely list all of the ongoing and planned climate change related activities related to the Massachusetts state agencies. Only when that report is issued will be able to answer this question more completely.
Where does your state/agency get its scientific information for climate change planning efforts?	There was a regional downscaling effort conducted for the Northeas few years ago. We use that information for climate change projections. We have used the information gained from the Vulnerability Assessment done with Manomet, which was funded by Doris Duke, through the Wildlife Conservation Society to guide our planning efforts.

# Michigan

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	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation	No. Not at this time! Adaptation is one of 54 policy recommendations
plan?	of the state's recently released Climate Action Plan but funding has
	not been procured to do this in a coordinated, multi-sector fashion.
If yes, is there a legislative mandate for a multi-sector	There is no legislative mandate but there is an Executive Directive for
state-wide adaptation plan?	the MI Department of Environmental Quality to implement the MI
·	Climate Action Plan's 54 policy recommendations, including Cross
	Cutting Issue #8 (CCI-8) – Adaptation and Vulnerability (see:
	Executive Directive No. 2009 – 4). In particular, CCI-8 states in part:
	"The State of Michigan should undertake a comprehensive planning
	effort to assess and address the state's vulnerability to climate change
	and adaptation opportunities. Various organizations and agencies in

	the state are already collecting some of the information needed for such an assessment and efforts should be made to coordinate and consolidate these information-gathering activities."  Due to the January 2010 merger and reorganization of the MI Departments of Natural Resources and Environmental Quality, implementation of the Climate Action Plan is now the responsibility of the new Department of Natural Resources and Environment
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	(MDNRE).  At this time, Wildlife Division is the only MDNRE agency involved in adaptation planning. They are evaluating the vulnerabilities of wildli and plant species to climate change, using a tool developed by NatureServe. Each species is scored based on characteristics that might make it more sensitive to climate change. They are evaluating what species they can find funding to evaluate (plants and coastal species are in process) and are sharing results with other states.
	Wildlife Division is also updating their Wildlife Action Plan to incorporate climate change.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	In addition to MDNRE's Wildlife Division, other state agencies also involved in climate change adaptation are the Michigan Department Community Health (MDCH) and the MI Department of Energy, Labo and Economic Growth (MDELEG).
What sectors are involved?	The MDCH is involved in determining climate change impacts to human health in Michigan. MDELEG is working on some adaptation planning, primarily in the area of energy demand projections and energy production planning.
Where does your state/agency get its scientific information for climate change planning efforts?	IPCC, US EPA, Pew Center, Center for Climate Strategies, NOAA, NASA, many others

## Missouri

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	NO
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	N/A
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	NO
If your state is doing sector-wide adaptation planning, how far along in the process are they?	NO
What sectors are involved?	N/A
Where does your state/agency get its scientific information for climate change planning efforts?	N/A

## Nebraska

Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation

plan?	No. Our governor is not particularly pro-active on this issue.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No. No plan is being developed.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	
What sectors are involved?	
Where does your state/ <u>agency</u> get its scientific information for climate change planning efforts?	Our agency: primary literature, U.S. Climate Change Science Program, AFWA guidance document, conservation organizations, et

# **New Hampshire**

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Has one, see: <a href="http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan.htm">http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan.htm</a> now working on implementation plans.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	Multi-sector task force put plan together (including NHFG but we we invited to participate late in process). Multi-sector implementation.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	Only lead on ecosystems and wildlife adaptation planning. Other workgroups on other aspects (forest, agriculture, coastal, public health, etc) lead by others. All coordinated by Dept Environmental Services.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	Dept Environmental Services – lead creation of state Climate Action Plan (Governors task force) and leads implementation phases. Has climate adaptation coordinator to assist in adaptation planning. Depi Health has grant to work on public health aspects. Dept. of Resource and Economic Development is working on forest adaptation and mitigation. Governor's office – RGGI. Many agencies involved in adaptation planning on specific aspects – coastal, forests, agricultur public health, energy and infrastructure etc.
Where does your state/agency get its scientific information for climate change planning efforts?	Multiple sources – literature review, Univ. of NH Climate Change Research Center, USGS etc.

# New Jersey

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation	The NJ Div. of Fish and Wildlife is planning to develop a guidance
plan?	document to guide land and wildlife management to assist wildlife

	species and their associated habitats to persist and/or become more resilient. The NJDEP report <i>Meeting New Jersey's 2020 Greenhouse Gas Limit: New Jersey's Global Warming Respons Act Recommendations Report</i> released in December 2009 proposithat the State develop a comprehensive adaptation plan.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	No there is not a legislative mandate.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	Not at this time.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	See above
Where does your state/agency get its scientific information for climate change planning efforts?	The NJ Division of Fish and Wildlife, we are/will be using information obtained through the NJ State Climatologist, The Nature Conservancy's Climate Wizard predictive model, Nature Serve's Vulnerability Index Tool and a panel of experts (not yet selected) to assess/evaluate the potential impacts on wildlife and their habitats.

## **New York**

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes, the New York State Climate Action Council is writing a Climate Action Plan which will include both mitigation and adaptation strategies; a draft is due by September 30, 2010.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	Yes; Executive Order No. 24, signed August 6, 2009, and sets a got to reduce greenhouse gas emissions by 80% below 1990 levels by 2050.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	Yes, for natural resources adaptation planning. For all sectors, Clim Action Council
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	There are four working groups dedicated to mitigating impacts from the following:  - Power Supply and Delivery - Residential, Commercial, and Industrial - Transportation and Land Use - Agriculture, Forestry, and Waste Management An additional working group is dedicated to Adaptation.
Where does your state/agency get its scientific information for climate change planning efforts?	Many sources, tracked in Natural Resources References and Resources document (attached in e-mail) for NYSDEC DFWMR, primarily gleaned from the internet.

## Pennsylvania

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes, a state climate change document was recently completed, but lacks adaptation strategies. There is a process in place to develop these strategies and is anticipated to be completed in late 2010 or early 2011.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	On July 9, 2008, Governor Rendell signed the Pennsylvania Climate Change Act (Act 70). Among a number of goals, Act 70 required the preparation of this report. Working with the Climate Change Advisor Committee (CCAC) mandated under Act 70, the Department of Environmental Protection (Department) has prepared a Climate Change Action Report. Multiple public sectors involved. However, part of this report, adaptation strategies were not developed, but we recommended to be developed. The agencies and NGO partners a currently involved in a series of public meetings that will develop the strategies for PA Climate Change Report (http://www.portal.state.pa.us/portal/server.pt/community/climate_chage_advisory_committee/10412)
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No. The Department of Environmental Protection (DEP) is the lead agency
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	See above
Where does your state/agency get its scientific information for climate change planning efforts?	Technical experts involved with the PA Biological Survey; information from the CC Adaptation Plan, CC Action Plan, and CC Impact Assessment reports completed for PA; NatureServe and IUCN reported Audubon and TNC; PGC and PFBC agency biologists and land/waterway managers etc.  See also Section 2 (pages 8-11) of the document: "Weathering Climate Change: Framing Strategies to Minimize Impacts on Pennsylvania Ecosystems and Wildlife. Perspectives from Conservation Leaders and Experts on Climate Change Adaptation."
	http://www.nature.org/wherewework/northamerica/states/pennsyl/news/news3423.html

## Texas

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	No
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	We're the only agency actively considering the issue through revisio of our WAP.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	

What sectors are involved?	
Where does your state/agency get its scientific	Through groups like AFWA, NWF, universities, and other networks.
information for climate change planning efforts?	

## **Vermont**

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Not at this time, although we are beginning to think about how to go about developing such a plan.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	No legislative mandate exists at this time.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No, we are a partner in discussions on climate change planning in the state with other elements of state government.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	n/a
What sectors are involved?	n/a
Where does your state/agency get its scientific information for climate change planning efforts?	We are using a range of sources including our own monitoring data, data and reports from other states, reports from the NGO community such as the Nature Conservancy, and commonly sited publications.

# Virginia

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	In December 2008, a panel chaired by then-Secretary of Natural Resources L. Preston Bryant, Jr., completed development of a <i>Clim Change Action Plan</i> for Virginia as the output of then-Governor Kaine's Commission on Climate Change. The Commission was comprised of more than 40 citizens of the Commonwealth, including scientists, economists, environmental advocates, local government representatives, state lawmakers, and representatives from the energy, transportation, building, and manufacturing sectors. Staff support was provided chiefly by the Virginia Department of Environmental Quality
	( <a href="http://www.deq.state.va.us/info/climatechange.html">http://www.deq.state.va.us/info/climatechange.html</a> ). The Plan itsel may be found directly at <a href="http://www.deq.state.va.us/export/sites/default/info/documents/climatechange.html">http://www.deq.state.va.us/export/sites/default/info/documents/climatechange.html</a> ). Since the completion of the Plan, Virginians have elected a new Governor, and it is unclear this early in the new Administration how the Plan will be addressed.
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	No – the Governor's Commission on Climate Change and resulting Climate Change Action Plan for Virginia were borne from an Execution Order issued by then-Governor Kaine. The Commission was comprised of more than 40 citizens of the Commonwealth, including scientists, economists, environmental advocates, local government representatives, state lawmakers, and representatives from the energy, transportation, building, and manufacturing sectors.

Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No. As previously noted, Virginians elected a new Governor in November 2009, and it is unclear this early in the new Administration how the <i>Climate Change Action Plan</i> completed in December 2008 be addressed.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	See above
What sectors are involved?	See above
Where does your state/agency get its scientific information for climate change planning efforts?	Consistent with its legislative mandate to use scientific principles and procedures as developed, researched, recognized and accepted within the bounds of comprehensive professional wildlife resource management, the DGIF has sought out information from those entitie (e.g., National Wildlife Federation; The Wildlife Society; Virginia Tect that have reported about climate change in Virginia, regionally, nationally, or globally. We've applied this information as applicable if the development and implementation of the DGIF's initial climate change strategy. In some cases, we've identified needs for information that does not currently exist, and we are working to develop those data (e.g., species vulnerability to climate change; attitudes of Virginians to climate change and management actions the the DGIF may take to help wildlife and habitats adapt).

## Washington

	Vac/No/Comments/Deleted Links
	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes. SB5560 was passed in 2009, and includes a directive to develop a statewide, multi-sector response and adaptation plan.
	WDFW is one of six state agencies named by the legislation to a steering committee to guide development of this plan.
	http://www.ecy.wa.gov/climatechange/
	OD TOO
If yes, is there a legislative mandate for a multi-sector state-wide adaptation plan?	SB5560 was passed in 2009.  5560-S2.SL[1].pdf
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	No – the Washington State Department of Ecology is named by the legislation to coordinate the development of the statewide, multi-sec adaptation strategy.
	WDFW is the lead for the development of strategies for species, habitat and ecosystems component of the plan, and has convened a 25 member advisory group to assist with this process.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	Four major sectors have been identified for the statewide adaptation strategy. Currently, advisory groups have been established and are meeting to assist in the following areas:

	<ol> <li>Infrastructure and the built environment.</li> <li>Human health and security</li> <li>Species, Habitats and Ecosystems.</li> <li>Working Lands and Waters.</li> </ol> A draft strategy is scheduled for Spring 2011.
What sectors are involved?	See Above.
Where does your state/agency get its scientific information for climate change planning efforts?	The State relies on data provided by the Climate Impacts Group. <a href="http://cses.washington.edu/cig/">http://cses.washington.edu/cig/</a>

## Wisconsin

	Yes/ No/ Comments/ Related Links
Is your state planning a multi-sector state-wide adaptation plan?	Yes, Wisconsin DNR is in the beginning stages of developing an adaptation plan. A small cross-program team is currently identifying process and timeline for completion of the plan. The plan will cover sectors that are being addressed by the WICCI initiative (see below AND that fall within the responsibilities of the DNR.
	Providing the scientific foundation for the department's adaptation p is the work of the Wisconsin Initiative on Climate Change Impacts (WICCI), a group formed out of a partnership between the Wisconsin Department of Natural Resources and the University of Wisconsin-Madison's Nelson Institute for Environmental Studies in 2007. The goal of WICCI is to assess and anticipate climate change impacts o Wisconsin's natural resources, ecosystems, regions and industries (including agriculture, tourism and other human activities) and devel and recommend adaptation strategies that can be implemented by businesses, farmers, public health officials, municipalities, wildlife managers and other stakeholders (http://www.wicci.wisc.edu/)
If yes, is there a legislative mandate for a multi-sector	, ,
state-wide adaptation plan?	No, there is no legislative mandate for a multi-sector state-wide adaptation plan. The Governor's Task Force On Global Warming Fine Report (2008) recommends funding for research & development related to climate change adaptation. The Department Natural Resources is responsible for protecting and enhancing Wisconsin's natural resources—resources that are and will continue be impacted by climate change. Planning for these impacts is both a priority and a responsibility of the department.
Is your agency (Wildlife Agency) the lead on adaptation planning for your state?	Yes, in collaboration with the Wisconsin Initiative on Climate Chang Impacts.
If your state is doing sector-wide adaptation planning, how far along in the process are they?	The Wisconsin Initiative on Climate Change Impacts will release their First Adaptive Assessment Report in fall 2010. The DNR's adaptation plan will use this report as the basis for developing its adaptation plan. Adaptation strategies identified in WICCI's First Adaptive Assessment Report will be further refined and scaled to management actions that can be implemented locally by WI DNR managers. WICCI's Wisconsin Climate Working Group has comple work on downscaling global climate models, which provide higher resolution at regional and local scales relevant to Wisconsin. The future climate scenarios provided by the Climate Working Group provide the basis for vulnerability assessments and

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	recommended adaptation strategies developed by all other working groups.
What sectors are involved?  Where does your state/agency get its scientific	The WICCI Advisory Council is comprised of members from various sectors.  The general sectors are (WICCI Wildlife Working Groups in parentheses):  Agriculture (Ag, Soil Conservation)Biodiversity and Habitat (Coldwater, Forestry, Plants/Natural Areas, Wildlife)Coastal Resources (Coastal, Green Bay)Human Health (Human Health, Milwaukee)Urban Infrastructure (Milwaukee, Storm water)Water Resources (Central Sands, Water Resources)  WICCI has compiled and used the data, which come from a variety of
information for climate change planning efforts?	<ul> <li>IPCC models, used by the climate working group</li> <li>WI specific climate data (historic);</li> <li>Wildlife Action Plan;</li> <li>U.S. Forest Service breeding bird and tree atlas;</li> <li>Scientific literature reviews for vulnerability assessments &amp; sensitivity analysis;</li> <li>original research;</li> <li>Statewide fisheries database.</li> </ul>